

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re Patent Application of	)	
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Sanjay GHEMAWAT et al.	)	<b>M/S: Appeal Brief - Patents</b>
	)	
Application No.: 10/608,139	)	Group Art Unit: 2163
	)	
Filed: June 30, 2003	)	Examiner: H. Thai
	)	
For: SYSTEMS AND METHODS FOR	)	
REPLICATING DATA	)	

U.S. Patent and Trademark Office  
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**REPLY BRIEF UNDER 37 C.F.R. § 41.41**

This Reply Brief is submitted in response to the Examiner's Answer, mailed September 21, 2007.

I. STATUS OF CLAIMS

Claims 1-27 are pending in this application.

Claims 1-8 stand rejected under 35 U.S.C. § 102(b) as allegedly anticipated by Jindal et al. (U.S. Patent No. 6,324,580).

Claims 19-27 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Jindal et al. and Narendran et al. (U.S. Patent No. 6,070,191).

Claims 9-18 stand withdrawn from consideration as a result of an election to a restriction requirement.

Claims 1-8 and 19-27 are the subject of the present appeal. These claims were reproduced in the Claim Appendix of the Appeal Brief.

II. GROUND OF REJECTION TO BE REVIEWED ON APPEAL

- A. Claims 1-8 stand rejected under 35 U.S.C. § 102(b) as anticipated by Jindal et al.
- B. Claims 19-27 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Jindal et al. and Narendran et al.

III. RESPONSE TO ARGUMENT SECTION OF EXAMINER'S ANSWERA. **The Rejection Under 35 U.S.C. § 102(b) Based on Jindal et al. (U.S. Patent No. 6,324,580) Should be Reversed.**

## 1. Claims 1 and 8.

Independent claim 1 recites, among other things, identifying ones of the servers to store a replica of the data based on at least one of utilization of the servers, prior data distribution involving the servers, or failure correlation properties associated with the servers. In the Appeal Brief, Appellants provided substantial reasons why Jindal et al. does not disclose or suggest this feature of claim 1. Appeal Brief, pages 32-35.

In the Examiner's Answer, the Examiner alleged Jindal et al. "clearly discloses that executing a replicated service is selected and processed to a preferred server" and cited column 4, lines 49-67, and column 5 of Jindal et al. for support. Examiner's Answer, page 10. Appellants submit that these sections of Jindal et al. provide absolutely no support for the Examiner's allegation.

Column 4, lines 49-67, was reproduced in the Appeal Brief. Appeal Brief, page 33. In this section, Jindal et al. discloses that a replicated service is available on multiple servers and that each of these servers operates a separate instance of the replicated service. Jindal et al. also discloses identifying a preferred server, as a least loaded or closest server, to which to direct subsequent requests for the replicated service. Clearly, identifying a least loaded or closest server as a preferred server to which to direct requests for a replicated service is completely different from identifying servers to store a replica of data, let alone identifying ones of the servers to store a replica of data based on at least one of utilization of the servers, prior data

distribution involving the servers, or failure correlation properties associated with the servers, as recited in claim 1.

In column 5, Jindal et al. discloses balancing requests among multiple servers. In other words, Jindal et al. discloses balancing the number of requests for a replicated service among multiple servers. Clearly, balancing requests for a replicated service among multiple servers is completely different from identifying servers to store a replica of data, let alone identifying ones of the servers to store a replica of data based on at least one of utilization of the servers, prior data distribution involving the servers, or failure correlation properties associated with the servers, as recited in claim 1.

In other words, Appellants' claimed invention involves replicas of data and identifying servers to store these replicas, whereas Jindal et al. involves a replicated service available on multiple servers and determining to which of these servers to direct a request for the replicated service. Clearly, these two functions are completely different. Thus, Jindal et al. does not disclose or suggest identifying ones of the servers to store a replica of data based on at least one of utilization of the servers, prior data distribution involving the servers, or failure correlation properties associated with the servers, as recited in claim 1.

Independent claim 1 further recites, among other things, placing the replicas of the data at the identified servers. In the Appeal Brief, Appellants provided substantial reasons why Jindal et al. does not disclose or suggest this feature of claim 1. Appeal Brief, pages 35-36. In the Examiner's Answer, the Examiner did not address these arguments and, thus, the Examiner apparently concedes to the validity of the arguments.

For at least the foregoing reasons and for those reasons presented in the Appeal Brief,

Appellants submit that the rejection of claims 1 and 8 under 35 U.S.C. § 102(b) based on Jindal et al. is improper. Accordingly, Appellants request that the rejection of claims 1 and 8 be reversed.

2. Claims 2 and 3.

Dependent claim 2 recites identifying underutilized ones of the servers as candidates to store the replicas of the data. In the Appeal Brief, Appellants provided substantial reasons why Jindal et al. does not disclose or suggest this feature of claim 2. Appeal Brief, pages 36-37.

In the Examiner's Answer, the Examiner alleged that Jindal et al. discloses "identifying a utilized server (i.e. 'referred server') and underutilized ones of the servers (i.e. 'closest server') or a different server that is not a referred server" and cited column 4, lines 49-67, of Jindal et al. for support. Examiner's Answer, page 10. Regardless of the accuracy of the Examiner's allegation, Appellants submit that Jindal et al. does not disclose or suggest identifying underutilized ones of the servers as candidates to store the replicas of the data, as recited in claim 2.

Column 4, lines 49-67, was reproduced in the Appeal Brief. Appeal Brief, page 33. In this section, Jindal et al. discloses that a replicated service is available on multiple servers and that each of these servers operates a separate instance of the replicated service. Jindal et al. also discloses identifying a preferred server, as a least loaded or closest server, to which to direct subsequent requests for the replicated service. Clearly, identifying a least loaded or closest server as a preferred server to which to direct requests for a replicated service is completely different from identifying servers as candidates to store replicas of data, let alone identifying underutilized ones of the servers as candidates to store the replicas of the data, as recited in claim 2.

In other words, Appellants' claimed invention involves replicas of data and identifying servers to store these replicas, whereas Jindal et al. involves a replicated service available on multiple servers and determining to which of these servers to direct a request for the replicated service. Clearly, these two functions are completely different. Thus, Jindal et al. does not disclose or suggest identifying underutilized ones of the servers as candidates to store the replicas of the data, as recited in claim 2.

For at least the foregoing reasons and for those reasons presented in the Appeal Brief, Appellants submit that the rejection of claims 2 and 3 under 35 U.S.C. § 102(b) based on Jindal et al. is improper. Accordingly, Appellants request that the rejection of claims 2 and 3 be reversed.

3. Claim 4.

Dependent claim 4 recites identifying ones of the servers that have not been involved in a recent data distribution as candidates to store the replicas of the data. In the Appeal Brief, Appellants provided substantial reasons why Jindal et al. does not disclose or suggest this feature of claim 4. Appeal Brief, pages 37-38.

In the Examiner's Answer, the Examiner alleged that Jindal et al. discloses:

identifying a utilized server (i.e. "referred server) and underutilized ones of the servers (i.e. "closest server") or a different server that is not a preferred server (see col.4, lines 49-67) and thus the underutilized servers are ones of the servers that have not been involved in a recent data distribution as candidates to store the replicas of the data.

Examiner's Answer, page 11. Appellants submit that the disclosure of Jindal et al. provides no support for the Examiner's allegation.

Column 4, lines 49-67, was reproduced in the Appeal Brief. Appeal Brief, page 33. In this section, Jindal et al. discloses that a replicated service is available on multiple servers and

that each of these servers operates a separate instance of the replicated service. Jindal et al. also discloses identifying a preferred server, as a least loaded or closest server, to which to direct subsequent requests for the replicated service. Clearly, identifying a least loaded or closest server as a preferred server to which to direct requests for a replicated service is completely different from identifying servers as candidates to store replicas of data, let alone identifying ones of the servers that have not been involved in a recent data distribution as candidates to store the replicas of the data, as recited in claim 4.

In other words, Appellants' claimed invention involves replicas of data and identifying servers to store these replicas, whereas Jindal et al. involves a replicated service available on multiple servers and determining to which of these servers to direct a request for the replicated service. Clearly, these two functions are completely different. Thus, Jindal et al. does not disclose or suggest identifying ones of the servers that have not been involved in a recent data distribution as candidates to store the replicas of the data, as recited in claim 4.

The Examiner's conclusion of "thus the underutilized servers are ones of the servers that have not been involved in a recent data distribution as candidates to store the replicas of the data" simply mirrors Appellants' claim language and is totally unsupported by the disclosure of Jindal et al.

For at least the foregoing reasons and for those reasons presented in the Appeal Brief, Appellants submit that the rejection of claim 4 under 35 U.S.C. § 102(b) based on Jindal et al. is improper. Accordingly, Appellants request that the rejection of claim 4 be reversed.

4. Claim 5.

Dependent claim 5 recites identifying system conditions that affect two or more of the



servers, and identifying ones of the servers as candidates to store the replicas of the data based on the identified system conditions. In the Appeal Brief, Appellants provided substantial reasons why Jindal et al. does not disclose or suggest these features of claim 5. Appeal Brief, pages 39-40.

In the Examiner's Answer, the Examiner alleged that:

The request for configuration and purpose of the status objects depend upon the policy that have been selected for choosing a preferred server. Therefore, this "policy" is equivalent to the claimed "system condition" that affect on the servers.

(emphasis in original) Examiner's Answer, page 11. Appellants submit that the Examiner's allegation lacks merit. Contrary to the Examiner's allegation, directing a request based on a policy that dictates which server is the preferred server to receive subsequent requests for a replicated server is completely different from identifying servers as candidates to store replicas of data based on system conditions that affect two or more of the servers, as recited in claim 5.

As explained above, Appellants' claimed invention involves replicas of data and identifying servers to store these replicas, whereas Jindal et al. involves a replicated service available on multiple servers and determining to which of these servers to direct a request for the replicated service. Clearly, these two functions are completely different. Thus, Jindal et al. does not disclose or suggest identifying ones of the servers as candidates to store replicas of data based on system conditions that affect two or more of the servers, as recited in claim 5.

For at least the foregoing reasons and for those reasons presented in the Appeal Brief, Appellants submit that the rejection of claim 5 under 35 U.S.C. § 102(b) based on Jindal et al. is improper. Accordingly, Appellants request that the rejection of claim 5 be reversed.

5. Claim 6.

Dependent claim 6 recites that a number of the replicas of the data stored by the servers is user-configurable. In the Appeal Brief, Appellants provided substantial reasons why Jindal et al. does not disclose or suggest this feature of claim 6. Appeal Brief, pages 40-41.

In the Examiner's Answer, the Examiner alleged that:

Jindal clearly discloses client is configured to provide a user access to a network to identify a server that handle the replica request (col.5, lines 37-55, Jindal) and thus read on the claimed limitation of "a number of the replicas of the data stored by the servers is user-configurable."

Examiner's Answer, page 12. Appellants submit that there are many misstatements in the Examiner's allegation. For example, Jindal et al. does not disclose or remotely suggest that the user identifies a server to handle a replica request. Instead, Jindal et al. discloses that a user can use client 120 to access various applications and services on servers and that client 120 can direct its web browser to access a replicated service that is exposed to clients via a virtual server name. Column 5, lines 38-41 and 48-51.

Further, Jindal et al. does not disclose or remotely suggest a replica request. Instead, Jindal et al. discloses a request for a replicated service. Column 4, lines 62-64.

Thus, the Examiner's conclusion, that Jindal et al. discloses that a number of replicas of data stored by the servers is user-configurable, lacks merit.

For at least the foregoing reasons and for those reasons presented in the Appeal Brief, Appellants submit that the rejection of claim 6 under 35 U.S.C. § 102(b) based on Jindal et al. is improper. Accordingly, Appellants request that the rejection of claim 6 be reversed.

**B. The Rejection Under 35 U.S.C. § 103(a) Based on Jindal et al. (U.S. Patent No. 6,324,580) in View of Narendran et al. (U.S. Patent No. 6,070,191) Should be Reversed.**

1. Claims 19 and 20.

Independent claim 19 recites, among other things, determining whether to redistribute any of the replicas of chunks of data stored by a plurality of servers. In the Appeal Brief, Appellants provided substantial reasons why Jindal et al. and Narendran et al., whether taken alone or in any reasonable combination, do not disclose or suggest this feature of claim 19. Appeal Brief, pages 45-49.

In the Examiner's Answer, the Examiner alleged that:

The replicated system has to have the ability of redistribution despite that it does not recite the claimed limitation in verbatim. Jindal clearly discloses the replicated services include the redistribution based on utilization of server (i.e. "referred server") as illustrated in the claimed language.

Examiner's Answer, page 12. Appellants submit that the Examiner's allegations are in direct contrast to prior admissions made by the Examiner. The Examiner admitted that Jindal et al. does not disclose redistributing replicas. Final Office Action, page 6. This admission further supports Appellants' arguments that Jindal et al. does not disclose or suggest determining whether to redistribute any of the replicas, as recited in claim 19. In other words, if Jindal et al. does not disclose redistributing replicas, as admitted by the Examiner, then no reasonable argument can be made that Jindal et al. discloses determining whether to redistribute any of the replicas, as recited in claim 19.

Further, the Examiner's allegation that Jindal et al. clearly discloses the replicated services include the redistribution based on utilization of server lacks merit. Jindal et al. discloses that a replicated service is available on multiple servers and that each of these servers operates a separate instance of the replicated service. Column 4, lines 49-57. Jindal et al. also

discloses identifying a preferred server, as a least loaded or closest server, to which to direct subsequent requests for the replicated service. Column 4, lines 58-64. In other words, Jindal et al. discloses identifying a server to which to direct a request for a replicated service available at the server. This is completely different from determining whether to redistribute any of the replicas of chunks of data stored by a plurality of servers, as recited in claim 19.

In other words, Appellants' claimed invention involves replicas of chunks of data stored by a plurality of servers and determining whether to redistribute any of these replicas, whereas Jindal et al. involves a replicated service available on multiple servers and determining to which of these servers to direct a request for the replicated service. Clearly, these two functions are completely different. Thus, contrary to the Examiner's allegation, Jindal et al. does not disclose or suggest determining whether to redistribute any of the replicas of chunks stored by a plurality of servers, as recited in claim 19.

In the Examiner's Answer, the Examiner further alleged that Narendran et al. provides supportive evidence for the teaching of redistribution or redirection of the data among a plurality of servers. Examiner's Answer, page 12. The Examiner continues to ignore the fact that Narendran et al. explicitly teaches away from the features recited in claim 19, as Appellants specifically pointed out in the Appeal Brief at pages 46-48.

The Examiner alleged that it would have been obvious to combine the features of Jindal et al. and Narendran et al. because:

The repeated motivation would have been to a computer's efficiency that can obtain a maximum flow with a minimum cost of a network flow system.

Examiner's Answer, pages 12-13. Appellants submit that the Examiner's motivation statement lacks merit. The Examiner has not explained how incorporating the alleged "redistribution or

redirection of data" of Narendran et al. into the system of Jindal et al. would improve a computer's efficiency or obtain a maximum flow with a minimum cost of a network flow system. Both of these alleged benefits are totally unrelated to redistribution or redirection of data. Thus, the Examiner's motivation statement lacks merit and falls short of establishing a prima facie case of obviousness with regard to claim 19.

Independent claim 19 further recites, among other things, selecting one or more replicas to redistribute based on the utilization of the servers. In the Appeal Brief, Appellants provided substantial reasons why Jindal et al. and Narendran et al., whether taken alone or in any reasonable combination, do not disclose or suggest this feature of claim 19. Appeal Brief, page 49. In the Examiner's Answer, the Examiner did not address these arguments and, thus, the Examiner apparently concedes to the validity of the arguments.

For at least the foregoing reasons and for those reasons presented in the Appeal Brief, Appellants submit that the rejection of claims 19 and 20 under 35 U.S.C. § 103(a) based on Jindal et al. and Narendran et al., whether taken alone or in any reasonable combination, is improper. Accordingly, Appellants request that the rejection of claims 19 and 20 be reversed.

IV. CONCLUSION

In view of the foregoing arguments and the arguments presented in the Appeal Brief, Appellants respectfully solicit the Honorable Board to reverse the Examiner's rejections of claims 1-8 and 19-27 under 35 U.S.C. §§ 102 and 103.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1070 and please credit any excess fees to such deposit account.

Respectfully submitted,  
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